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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,016	06/16/2005	Andrew Levers	540-569	7399
23117 7590 07/28/2008 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
D'ANIELLO, NICHOLAS P				
ART UNIT		PAPER NUMBER		
1793				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/539,016

**Applicant(s)**

LEVERS, ANDREW

**Examiner**

Nicholas P. D'Aniello

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-39 is/are pending in the application.
- 4a) Of the above claim(s) 27-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-26, 38 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 6/16/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-5, 7-26, 38 and 39 in the reply filed on June 18<sup>th</sup> 2008 is acknowledged. The traversal is on the ground(s) that the claims have been amended to recite a common special technical feature. This is not found persuasive because the apparatus as claimed is known in the art as exemplified by Hass et al (USP 6,089,061) or Bornschlegl et al. (USP 6,264,771) and Haas et al.

Accordingly, the special technical feature linking these claims is also known as exemplified by Hass et al. who teach a shape modifying apparatus with an open structure, which is a combination of individual elements separated by gaps, where the shape to which the component will be modified is defined by the smooth surface bridging said gaps, where the intermediate member deforms to the smooth surface but is rigid enough to prevent local deformation between the gaps (figures; column 7 lines 33-58). This special technical feature does not provide a contribution over the prior art and no single general concept exists, therefore a lack of unity exists, and restriction is appropriate.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim recites that "the intermediate member is such that is *may* repeatedly deform to..." (emphasis added) however it is unclear whether this limitation positively requires the intermediate member to repeatedly deform. For the purpose of examination this claim is taken to mean an intermediate member which is reusable in its deformation.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 10-17 and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Hass et al. (USP 6,089,061).

Hass et al. teach an apparatus for shaping an aircraft component comprising a shaped surface defined by a collection of pins 5, 505 with intermediate interpolating pads 210 (which during use receives and supports the component to be modified) which deform to the shape of the shaped surface. The shaped surface is defined by an open structure, which is separated by the gaps between the pins. The intermediate surface dependent on the smooth surface which bridges the gaps (as seen in figure 1),

therefore the intermediate member must be sufficiently stiff so that it suffers no local deformation in regions that bridge the gaps (column 7 lines 33-58).

In regard to **claims 2 and 3**, as seen in figure 1, the intermediate members 210 are generally sheet like with a constant thickness.

In regard to **claim 10**, as noted above, the shaped surface is defined by an open structure. As seen in figure 1, a gap exists between the individual pins 505.

In regard to **claims 11 and 12**, the shaped surface is defined by a multiplicity of spaced apart elements (such as pins 505); the shape to which the component will be modified is dependent on the smooth surface defined by the multiplicity of separate elements 505.

In regard to **claim 13**, the elements are arranged in common modules 560 (groups) which remain mounted and in a fixed relation to each other (figure 2; column 6, lines 57-65).

In regard to **claim 14**, the elements 505 make up rows and columns which may be oriented into a ribbed structure such as seen in figure 2.

In regard to **claim 15**, the modules 100 can be placed in any orientation for the required plan form (figure 5; column 9, lines 19-21) and are identical and interchangeable (column 10, lines 6-8) and are threaded such that they may be attached (and detached) by drive nuts or couplings 15 or 505 as seen in figure 5 (column 7, lines 58-64) and therefore are movably (and removably) mounted on the apparatus.

In regard to **claim 16**, the modules 100 (portion of the elements) are engaged with each other by a controller (corresponding portion of the apparatus) (column 10, lines 6-31) and the elements (pins 505) are not restricted from movement away from the apparatus (figure 2).

In regard to **claim 17**, the shaped surface of the pins is set into place and the pads 210 must be sufficiently rigid to prevent local crippling or damage to the aircraft component 200 (column 7, lines 35-40).

In regard to **claims 38 and 39**, Haas et al. teach that this forming apparatus is capable of making honeycomb cores (aircraft components) which are used in the aerospace industry; where many aircraft require honeycomb core formed structures for their strength to weight ratio (column 10, lines 46-59).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
8. Claims 4, 5, 7-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hass et al (USP 6,089,061).

Hass et al. teach a shape modifying apparatus as applied above. **Claim 4** differs from the reference in calling for the intermediate member to be flat prior to use. However it would have been obvious that this member would be flat prior to use because Haas et al. teach the intermediate members are open-weave fiber or mesh pads, which typically originate as flat sheets. Although the intermediate member 210 as shown in figure 1 is not flat (because it is conforming to the shaped surface), it is reasonably assumed that the intermediate member 210 would start as a flat sheet in order to be uniformly deform to the contour of the shaped surface.

In regard to **claim 5**, Haas et al. teach an apparatus as applied above where the intermediate member deform to the shape of the shaped surface. Although not specifically disclosed, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the intermediate member reusable in order to reduce the cost using the reshaping apparatus.

In regard to **claim 7**, Haas et al. teach an apparatus as applied above where the intermediate member is placed (free to move) over shaped surface (column 7, lines 33-40). Although not specifically disclosed, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide predefined boundaries to prevent the member from falling out of the apparatus.

In regard to **claims 8**, although Haas et al. does not specifically disclose that the workpiece is free to move in directions parallel to the shaped surface, Haas et al. teach that the workpiece maybe different sizes (column 9, lines 5-10) and therefore it is reasonably assumed that a workpiece which is substantially smaller than the forming cavity would be free to move over the shaped surface. The Examiner notes this claim relates to the component acted upon by the apparatus, however per MPEP 2115: "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). As the apparatus of Haas et al. is structurally equivalent to the claimed apparatus, the shaping apparatus of Haas et al. is reasonably assumed to be capable of being arranged such that the aircraft component is free to move in directions parallel to the shaped surface.

In regard to **claim 9**, as seen in figure 1, a wall 280 prevents the aircraft component 200 from moving beyond predefined boundaries.

In regard to **claims 18 and 19**, As per MPEP 2114 relating to Apparatus and Article claims – Functional Language: While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).



As the reference and the claimed forming apparatus are structurally equivalent, the apparatus of the prior art is reasonable expected to be able to perform the claimed functionality (i.e. such as forcing the component against the shaped surface by providing an air pressure difference, by suction) because the pins 505 in the apparatus of Haas et al. are provided with holes 516 to allow the passage of air or gas into or out of the forming chamber by the air forced through a blower 250 (figure 3; column 7 line 33 – column 8 line 21) it would have been obvious to one of ordinary skill in the art at the time of the invention that the apparatus of Haas et al. is capable of creating an air pressure difference by suction by simply reversing the action of the blower 250.

9. Claims 1 and 18-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Bornschlegl et al. (USP 6,264,771 cited in IDS) in view of Hass et al (USP 6,089,061).

Bornschlegl et al. teach an apparatus for modifying the shape of an aircraft component (column 1, lines 6-8) where the component is forced against a shaped surface of the bottom segment 6 by an air pressure difference provided by suction of a vacuum foil (16, bag) (column 2, lines 30-34).

**Independent claims 1 and 21** differ from the reference in calling for an intermediate member and the shaped surface to be defined by an open structure, the open structure including elements separated by gaps, the shape to which the component may be modified being dependent on the shape defined by the notional smooth surface enveloping the elements and bridging the gaps, the intermediate member being sufficiently stiff that in use during the forcing of the aircraft component

against the shaped surface, the intermediate member deforms substantially to the shape of said notional smooth surface, but suffers substantially no local deformation in regions of the intermediate member that bridge the gaps.

However, Hass et al. teach an apparatus for shaping an aircraft component comprising a shaped surface defined by a collection of pins 5, 505 with intermediate interpolating pads 210 (which during use receives and supports the component to be modified) which deform to the shape of the shaped surface. The shaped surface is defined by an open structure, which is separated by the gaps between the pins. The intermediate surface dependent on the smooth surface which bridges the gaps (as seen in figure 1), therefore the intermediate member must be sufficiently stiff so that it suffers no local deformation in regions that bridge the gaps (column 7 lines 33-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide such a shaped surface and intermediate member in the apparatus of Bornschiagl et al. in order to obtain a forming apparatus with a reconfigurable shaped surface to facilitate the shape modifying of the aircraft component to any desired shape provided by the reconfigurable upper and lower dies of Haas et al.

In regard to **claims 18-20, 22 and 23**, Bornschiagl et al. teach a vacuum foil (16, bag) which encompasses the component 6 and a portion of the mold face (12, part of the apparatus) on the opposite side of the shaped surface, where the vacuum foil is sealed to the mold shell (10, base) in order to force the component against the shaped surface by means of suction (figures; column 3, lines 8-10).

In regard to **claim 24**, Bornschlegl et al. do not specifically teach that the vacuum foil (16, bag) is reusable, however it is reasonably assumed that this component is reusable, in the event that it is not taken to be reusable, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the vacuum foil reusable in order to reduce the cost using the reshaping apparatus.

In regard to **claim 25**, Bornschlegl et al. teach the reshaping apparatus as a creep forming tool (column 1, lines 19-20).

In regard to **claim 26**, Bornschlegl et al. teach using the reshaping apparatus for modifying metallic components (column 1, lines 6-65).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas P. D'Aniello whose telephone number is (571)270-3635. The examiner can normally be reached on Monday through Thursday from 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. P. D./  
Examiner, Art Unit 1793  
7/16/08

/Jerry A Lorengo/  
Supervisory Patent Examiner, Art  
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